



MOMENTUM

PRE-FOUNDATION

(A Division of Momentum Education Pvt. Ltd)

DATE :

DURATION: 2 HRS.

MARKS: 280

MTSE

(MODEL PAPER)

MTSE

MOMENTUM TALENT SEARCH EXAM

TEST ID-2102

CLASS: 7 (MOVING TO CLASS 8)

TEST NO - 1

INSTRUCTIONS

A. GENERAL

1. Please read the Instructions carefully, You are allotted 10 minutes specially for this purpose.
2. Blank papers, clip boards, log tables, slide rule, calculators, mobiles or any other electronic instrument in any form is "NOT PERMISSIBLE".
3. Before starting the paper, fill up the required details in the blank spaces provided in the answersheet.
4. Using a **Blue/ Black Pen**, darken the bubbles on the **OMR sheet**.
5. **DO NOT TAMPER WITH/MUTILATE THE OMR OR THE BOOKLET.**
6. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.

B. FILLING THE RIGHT PART OF THE OMR

7. Write your name, Bach and the Father's name in the boxes provided on the right part of the OMR. Do not write any of this information anywhere else. Darken the appropriate bubble under each digit of your Student ID Number and Test ID Number.
8. Do not fold or make any stray marks on the Answer Sheet.
9. On completion of the test, the candidate must hand over the Answer Sheet & Test Booklet to the Invigilator on duty in the Room / Hall.
10. Follow instructions by invigilator/Centre Superintendent (If any).
11. **Please fill in all the correct information on back page of this paper.**

C. QUESTION PAPER FORMAT :

This Question Paper consists of 70 objective type questions.

D. MARKING SCHEME :

- 4 Marks will be awarded for each Correct Answer.
- 1 Mark will be deducted for each incorrect Answer.
- 0 Marks will be awarded for unattempted Questions

Name of the Candidate

I have read all the instructions and shall abide by them

.....
Signature of the Candidate

Candidate ID

I have verified all the information filled in by the Candidate

.....
Signature of the Invigilator

MOMENTUM

Mathematics [Part- I]

1. The square root of 64 divided by the cube root of 64 is
(a) 64 (b) 2 (c) $\frac{1}{2}$ (d) $64^{2/3}$
2. Simplify: $\left(\frac{2}{5}\right)^5 \times \left(\frac{4}{9}\right)^2 + \left(\frac{2}{3}\right)^8$.
(a) $\frac{3}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) None
3. If $49a^2 - b = \left(7a + \frac{1}{2}\right)\left(7a - \frac{1}{2}\right)$, then the value of b is
(a) 0 (b) $\frac{1}{4}$ (c) $\frac{1}{\sqrt{2}}$ (d) $\frac{1}{2}$
4. If x is a positive real number and $x^2 = 2$, then $x^3 =$
(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $3\sqrt{2}$ (d) 4
5. If $\sqrt{2} = 1.4142$, then $\sqrt{\frac{\sqrt{2}-1}{\sqrt{2}+1}}$ is equal to
(a) 0.1718 (b) 5.8282 (c) 0.4142 (d) 2.4142
-

Space for rough work

MOMENTUM

6. Evaluate: $\frac{5}{8} + \frac{1}{2} + \frac{-2}{5} + \frac{7}{8} + \frac{-3}{2} + \frac{1}{5}$
- (a) $\frac{3}{10}$ (b) $\frac{3}{5}$ (c) $\frac{10}{3}$ (d) none
7. Find the product $7xy^2(2x^2y + 3x^2z^2)$
- (a) $14x^3y^3 + 21x^3y^2z^2$ (b) $8x^3y^3 + 11x^3y^2z^2$
(c) $13x^3y^3 + 18x^3y^2z^2$ (d) $19x^3y^3 + 25x^3y^2z^2$
8. $75 \times 75 + 2 \times 75 \times 25 + 25 \times 25$ is equal to
- (a) 10000 (b) 6250 (c) 7500 (d) 3750
9. When simplified $\left(-\frac{1}{27}\right)^{-2/3}$ is
- (a) 9 (b) -9 (c) $\frac{1}{9}$ (d) $-\frac{1}{9}$
10. The perimeter of a rectangle is 49 m. If the ratio between length and breadth is 4 : 3, find the area of the rectangle.
- (a) 147 m² (b) 174 m² (c) 148 m² (d) none
11. In a parallelogram ABCD, if $\angle DAB = 75^\circ$ and $\angle DBC = 60^\circ$, then $\angle BDC =$
- (a) 75° (b) 60° (c) 45° (d) 55°
12. The volume of a cubical box is 32.768 m³. Find the length of a side of the box.
- (a) 3.2 m (b) 2.8 m (c) 3.1 m (d) 3.0 m

Space for rough work

MOMENTUM

13. The value of $[2 - 3(2 - 3)^3]^3$ is
(a) 5 (b) 125 (c) $1/5$ (d) -125
14. The value of m for which $\left[\left\{\left(\frac{1}{7^2}\right)^{-2}\right\}^{-1/3}\right]^{1/4} = 7^m$, is
(a) $-\frac{1}{3}$ (b) $\frac{1}{4}$ (c) -3 (d) 2
15. Find the values of a if $\left(\frac{1}{2}\right)^a = \left[\left(\frac{1}{2}\right)^3\right]^7$
(a) 21 (b) 12 (c) 22 (d) none
16. The radius of a circle is 6 cm. The perpendicular distance from the centre of the circle to the chord which is 8 cm in length, is
(a) $\sqrt{5}$ cm (b) $2\sqrt{5}$ cm (c) $2\sqrt{7}$ cm (d) $\sqrt{7}$ cm
17. Find the square root of 0.105625.
(a) 0.323 (b) 0.331 (c) 0.325 (d) 0.321
18. $\sqrt{10} \times \sqrt{15}$ is equal to
(a) $5\sqrt{6}$ (b) $6\sqrt{5}$ (c) $\sqrt{30}$ (d) $\sqrt{25}$
19. The opposite sides of a quadrilateral have
(a) no common point (b) one common point
(c) two common points (d) infinitely many common points

Space for rough work

MOMENTUM

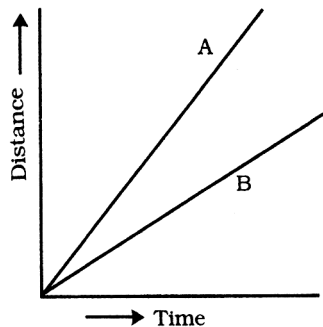
20. Find out the difference of the squares $15^2 - 14^2$.
(a) 20 (b) 92 (c) 29 (d) none
21. Find the square root of 1764.
(a) 24 (b) 22 (c) 21 (d) 42
22. If $(3x-1)^7 = a_7x^7 + a_6x^6 + a_5x^5 + \dots + a_1x + a_0$, then $a_7 + a_6 + a_5 + \dots + a_1 + a_0 =$
(a) 0 (b) 1 (c) 128 (d) 64
23. The cost of $2\frac{3}{4}$ m of cloth is Rs 583. Find the cost of $3\frac{1}{4}$ m of cloth.
(a) 698 (b) 689 (c) 869 (d) none
24. If the degree measures of the angles of quadrilateral are $4x, 7x, 9x$ and $10x$, what is the sum of the measures of the smallest angle and largest angle?
(a) 140° (b) 150° (c) 168° (d) 180°
25. If the length of a chord of a circle is 16 cm and is at a distance of 15 cm from the centre of the circle, then the radius of the circle is
(a) 15 cm (b) 16 cm (c) 17 cm (d) 34 cm

Space for rough work

MOMENTUM

Science [Part- II]

26. A simple pendulum takes 32 s to complete 20 oscillations. What is the time period of the pendulum?
(a) 1.6 sec (b) 0.62 sec (c) 2 sec (d) None of these
27. Salma takes 15 minutes from her house to reach her school on a bicycle. If the bicycle has a speed of 2 m/s, calculate the distance between her house and the school.
(a) 2.4 km (b) 1.8 km (c) 3 km (d) None of these
28. Figure shows the distance-time graph for the motion of two vehicles A and B. Which one of them is moving faster ?



Distance-time graph for the motion of two cars

- (a) A (b) B
(c) Both moving with same speed (d) Can't say
29. The rear view mirror of a car is a plane mirror. A driver is reversing his car at a speed of 2 m/s. The driver sees in his rearview mirror the image of a truck parked behind his car. The speed at which the image of the truck appears to approach the driver will be
(a) 1 m/s (b) 2 m/s (c) 4 m/s (d) 8 m/s

Space for rough work

MOMENTUM

30. A virtual image longer than the object can be produced by a
(a) Concave lens (b) Concave mirror (c) Convex mirror (d) Plane mirror
31. The time taken by the earth to complete one rotation about its axis is -
(a) 12 hours (b) 16 hours (c) 24 hours (d) 365 days
32. When steam condenses into water its -
(a) Temperature remains same (b) Heat dissipates
(c) Temperature increases (d) Temperature decreases
33. The fact that current is associated with a magnetic field was discovered by
(a) Oersted (b) Maxwell (c) Faraday (d) Ohm
34. An electric bulb converts electrical energy into
(a) Sound energy (b) Mechanical energy (c) Nuclear energy (d) None of these
35. Electromagnets are used in -
(a) Electric bells only (b) Telephones only (c) Dynamos only (d) All of the above
36. Which of the following is a di-basic acid.
(a) HCl (b) HF (c) H_2SO_4 (d) H_3PO_4
37. Lactic acid is Found in
(a) Curd (b) Tamarind (c) Vineger (d) Grapes
38. Litmus is a natural indicator. It is extracted from
(a) Fungi (b) Algae (c) Lichen (d) Pteridophytes
39. China – rose indicator changes acidic solⁿ into
(a) Grey (b) Red (c) Blue (d) Green
40. When an ant bites it injects the acidic liquid called
(a) Acetic acid (b) Citric acid (c) Formic acid (d) None
41. The reaction between on acid and base is called
(a) Decomposition Reaction (b) Neutralisation Reaction
(c) Displacement Reaction (d) All the above

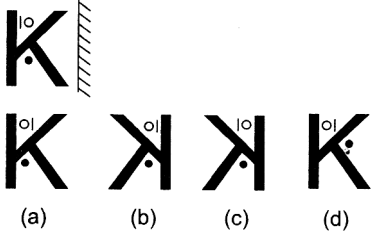
Space for rough work

MOMENTUM

42. A change in which no new substance is formed is called
(a) Chemical change (b) Physical change
(c) Both (a) and (b) (d) None of the above
43. When carbon dioxide is passed in lime water it turns milky due to formation of
(a) Calcium carbonate (b) Calcium hydroxide
(c) Calcium oxide (d) None of the above
44. The process of depositing a layer of zinc on iron to prevent rusting is called
(a) Vulcanization (b) Deposition (c) Galvanisation (d) Magnetisation
45. Which of the following is a Liquid metal ?
(a) Sodium (b) Calcium (c) Boron (d) Mercury
46. The plant that feeds & traps on insects is -
(A) Drosera (B) Sunflower (C) Cuscuta (D) Mango
47. Rhizobium is a good example of -
(A) insectivorous (B) symbiosis (C) parasitic (D) none of these
48. Which of the following regions of the alimentary canal of man does not secrete a digestive enzyme ?
(A) Oesophagus (B) Stomach (C) Duodenum (D) Mouth
49. A digestive enzyme, salivary amylase, in the saliva begin digestion of -
(A) protein (B) nucleic acids (C) fats (D) carbohydrates
50. Which of the following is an agent of weathering ?
(A) water (B) plant roots (C) glaciers (D) all
51. A soil can hold very little water is -
(A) clayey (B) loamy (C) sandy (D) parent rock
52. Hydra reproduces by -
(A) budding (B) spore formation (C) binary fission (D) fragmentation
53. Pollen grains are produced in -
(A) anther (B) filament (C) stigma (D) style
54. The air sacs at the end of the smallest air tubes inside the lungs are called.
(A) alveoli (B) bronchi (C) bronchioles (D) larynx
55. Glucose is oxidised to ethyl alcohol in -
(A) aerobic respiration (B) anaerobic respiration
(C) fermentation (D) none of these

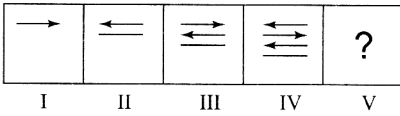
Space for rough work

56. Find the alternative which will be the mirror image of the following figure.

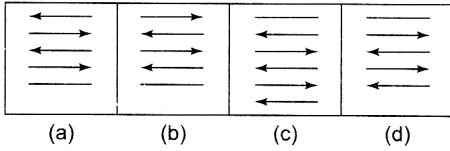


57. Find out the correct answer figure

Problem Figure



Answer Figure



58. Work : Joule :: Pressure?

- (A) Ampere (B) Pascal
(C) Degree (D) Newton

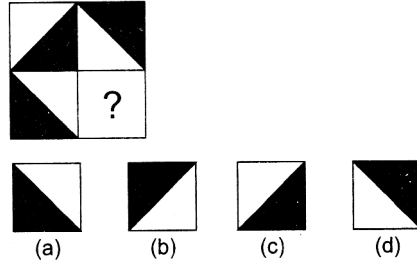
59. Aeroplane : Airport :: Ship : ?

- (A) Sea (B) Ocean
(C) Jetty (D) Harbour

60. A man is going towards the north, then look three left turns. Now in which direction is he going?

- (A) East (B) West
(C) North (D) South

61. Choose the correct option



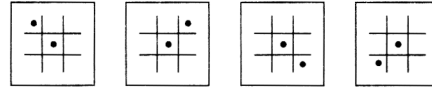
62. Find the missing term of the series:

1, 3, 7, 15, 31, 63, 127, ?

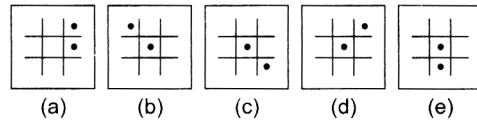
- (A) 250 (B) 150
(C) 255 (D) 350

63. Which figure will be next in following series of figures:

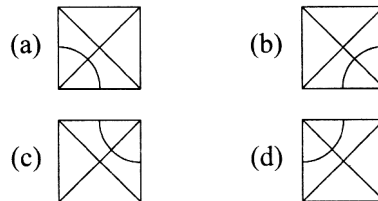
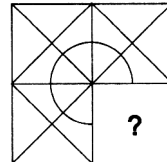
Problem figures



Answer figures



64. Choose the correct option to complete the figure



Space for rough work

MOMENTUM

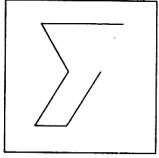
65. Find odd one out in the following

- (A) Rose (B) Lotus
(C) Marigold (D) Tulip

66. Find odd one out in the following

- (A) Pistol (B) Sword
(C) Gun (D) Rifle

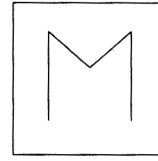
67. In which of the alternatives following figure is embedded



Response Figure

- (a) (b)
(c) (d)

68. In which of the alternatives following figure is embedded



Response Figure

- (a) (b)
(c) (d)

69. Choose the odd one out.

- (A) Donkey (B) Camel
(C) Cow (D) Mule

70. Choose the correct option according to the following relation

Fan : Sweat :: ?

- (A) Air : Fire (B) Smoke : Water
(C) Cloud : Drought (D) Candle : Darkness

Space for rough work

C. QUESTION PAPER FORMAT

The question paper consists of 3 parts I, II & III Mathematics, Science & Reasoning respectively.

D. MARKING SCHEME

There are three parts in the question paper. The distribution of marks subjectwise in each part is as under for each correct response :

PART	SUBJECT	QUESTION NO.	MARKS
Part - I	MATHEMATICS	01 to 25	4
Part - II	SCIENCE	26 to 55	4
Part - III	REASONING	56 to 70	4

You must fill the bubble in OMR in following manner. For example if only 'b' choice is correct then

A B C D

If you fill the bubble for any option other than the correct option then, your response will be considered incorrect. 1/4 (one four) of allotted marks i.e. 1 mark if a question carries 4 marks will be deducted for indicating incorrect response of each question. No. deduction from the total score will be made if no response is indicated for a question in the answer sheet.

GENERAL INFORMATION

Fill by the candidate :-

Candidate ID : _____

- Candidate Name : _____
- Father's Name : _____
- Mother's Name : _____
- Category : GEN OBC SC ST
- Mobile No. 1.(G) _____ 2. (P) _____
- NTSE Qualified Y N 7. KVPY Y N 8. OLYMPIAD Y N
- Board CBSE ICSE / ISC U.P. Others : _____
- Last Class : _____ % 10th % 12th % _____
- Last School Name : _____ City _____
- Any other achievement : _____
- Have you attempted any admission test before : Y N _____
- Old student of Momentum or admitted : Y N If yes, St.Id _____ /Batch _____

Disclaimer :

I hereby solemnly and sincerely affirm that all the particulars stated by me in this form are true and correct. However, if any information furnished herein is found false, wrong, incorrect or inaccurate, I understand that my candidate for Admission Test-2021 will be cancelled and lead to cancellation of the test result.

Candidate Signature _____

Invigilator Signature _____

MOMENTUM

ABOVE AXIS BANK, BETIAHATA CHOWK, GORAKHPUR

PHONES : 6389138701, 02